

Appl. No. 10/651,821
Amdt. dated September 26, 2005
Reply to Office Action of May 24, 2005

REMARKS/ARGUMENTS

Introduction:

Claims 51-58 are newly added. Claims 19-58 are now pending in the application, although claims 31-33 are currently withdrawn. (Claims 1-18 were previously canceled.) Applicants respectfully request reexamination and reconsideration of the application.

Claims 19-30, 34-37 and 51-54:

Claims 19-27 and 34 were rejected under 35 USC 102(b) as anticipated by US Patent No. 3,952,404 to Matunami ("Matunami"), and claims 28-30 were rejected under 35 USC 103(a) as obvious in view of Matunami and US Patent No. 5,160,579 to Larson ("Larson"). In addition, claims 35-37 were rejected under 35 USC 103(a) as obvious in view of Matunami and US Patent No. 6,264,477 to Smith et al. ("Smith"). Applicants respectfully traverse these rejections.

Independent claim 19 includes at least two features not taught or suggested by Matunami.

First, claim 19 describes the "interconnection element [as] having . . . a free end *extending over* a portion of [a] masking material," and claim 19 includes the step of "removing the masking material." In the Office Action, Matunami's beam leads, which consist of portions of metal film layers 20 and 18 as shown in Figure 15, were equated with the interconnection element of claim 19. As can be seen in Figure 15, however, no portion of Matunami's beam leads *extends over* any portion of a masking material (identified in the Office Action as portions of metal film layer 18 removed in the transition between Figures 14 and 15) that is later removed. Indeed, because Matunami's beam leads include portions of metal film layer 18 (see Figure 15), it would be impossible for Matunami's beam leads to extend over any part of the portions of metal film layer 18 that are removed in the transition between Figures 14 and 15. For this reason alone, Matunami does not anticipate or render obvious claim 19.

Second, claim 19 includes the step of "*transforming a property* of one of the first element material and the second element material of the interconnection element *to modify the shape* of the interconnection element." In Matunami, the shape of the beam leads is changed by bending metal films 18 and 20, which is accomplished by applying a physical force to the metal films 18 and 20 (Matunami col. 2, lines 32-35; col. 5, lines 49-51; and col. 6, lines 26-28)—not by transforming a property of metal film 18 or 20, as would be required to meet the requirements of claim 19.

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Recognizing this deficiency in Matunami, the Office Action states that heating Matunami's beam leads inherently transforms properties of the beam leads. Claim 19, however, requires "transforming a property . . . *to modify the shape* of the interconnection element." There is no teaching or suggestion that Matunami's beam leads are heated sufficiently to modify the shape of the beam leads. Rather, as discussed above, Matunami expressly teaches that the shape of the beam leads is changed by applying a physical force to the beam leads. (Matunami col. 2, lines 32-35; col. 5, lines 49-51; and col. 6, lines 26-28.) Moreover, Matunami utilizes heat treatment to improve the bond between material 7 and pads 4 in Figure 4, and this heat treatment occurs before the beam leads are formed. (See Matunami col. 4, lines 5-22.)

Matunami thus fails to teach or suggest "*transforming a property* of one of the first element material and the second element material of the interconnection element *to modify the shape* of the interconnection element," as required by claim 19. For this additional reason, Matunami does not anticipate or render obvious claim 19.

Claims 20-30, 34-37, and 51-54 depend from claim 19 and are therefore also patentable over Matunami, as neither Larson nor Smith make up for the above-discussed deficiencies in Matunami. Indeed, neither Larson nor Smith were relied on in the Office Action as teaching or suggesting the features of claim 19 discussed above as missing from Matunami. Moreover, claims 20-30, 34-37, and 51-54 recite additional features not taught or suggested by Matunami, Larson, or Smith, whether taken individually or in combination.

For example, claim 23, which depends from claim 19, states "wherein transforming produces a volume change in one of the first element material and the second element material." Contrary to the assertion in the Office Action, there is no evidence or indication in Matunami that Matunami's ultrasonic vibrations change the volume of either of metal films 20 or 18. The prior art of record thus fails to anticipate or render obvious claim 23.

Claims 38-50 and 55-58:

Claims 38-42 and 44-50 were rejected under 35 USC 102(b) as anticipated by Smith, and claim 43 was rejected under 35 USC 103(a) as obvious in view of Smith. Applicants respectfully traverse these rejections.

Independent claim 38 includes an "interconnection element" that comprises "a first element material and a second element material," and further includes the step of "transforming a

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property of one of the first element material and the second element material to modify the shape of the interconnection element, the transformed property causing the interconnection element to bend without the application of an external force." Nowhere does Smith teach bending an interconnection element that comprises two element materials. Rather, as shown in Figure 12, Smith bends only a single layer of metal 16. Therefore, Smith does not anticipate or render obvious claim 38.

Applicants note that, contrary to the assertion in the Office Action regarding Figures 8 and 9 of Smith, Figure 7 of Smith illustrates nothing more than that "a strip of metal having no stress gradient inherent in the metal will lie flat" (Smith col. 5, lines 14-15), and Figure 8 of Smith illustrates nothing more than that "when the strip is bent into an arc, a uniform stress gradient . . . is introduced into the strip" (Smith col. 5, lines 16-17). Figure 9 of Smith shows nothing more than "a model for determining the amount of force F_{tip} applied by the spring contact tip 30 to a contact pad 3 in reaction to the force of the contact pad 3 pressing down on the spring contact tip." (Smith col. 6, lines 11-14)

Claims 39-50 and 55-58 depend from claim 38 and are therefore also patentable over Smith. Moreover, claims 39-50 and 55-58 recite additional features not taught or suggested by Smith.

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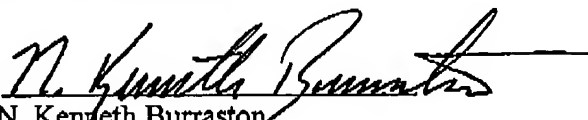
Conclusion:

In view of the foregoing, Applicants submit that all of the claims are allowable and the application is in condition for allowance. If the Examiner believes that a discussion with Applicants' attorney would be helpful, the Examiner is invited to contact the undersigned at (801) 323-5934.

Respectfully submitted,

Date: September 26, 2005

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